REPORT TO THE SENATE SELECT COMMITTEE (INTELLIGENCE)

on

INTELLIGENCE COMMUNITY MANAGEMENT AND USE OF ADP AND INFORMATION HANDLING RESOURCES

I. THE CURRENT SITUATION

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1.1 [redacted] Costs. The costs of ADP-related systems included in the budget of the National Foreign Intelligence Program (NFIP) are reported by Community members at approximately [redacted] for FY-78, not counting the costs of computers that are integral parts of the Intelligence Community's advanced technical collection systems.

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25X1A [redacted]

FY-78. Table 1.1 summarizes these costs for the years between FY-70 and FY-78. As the table indicates, over that period these ADP costs have doubled, [redacted] million per year at present, and they have increased from some [redacted]

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25X1A nearly [redacted] of the NFIP. These costs are probably somewhat understated, since proliferating technological changes and expanding work applications for computer-related equipment make it increasingly difficult to precisely define "ADP-related" resources.(*) No standard, governmentwide terminology exists for this purpose.

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(*) - An OMB draft report dated 30 August 1977, entitled Federal Data Processing Reorganization Study [redacted] comments that "the technology of computers and teleprocessing is becoming increasingly complex. Specifically, the differences between telecommunications and computing, minicomputers, microcomputers, and office machines are becoming less and less distinct." (p. 19)

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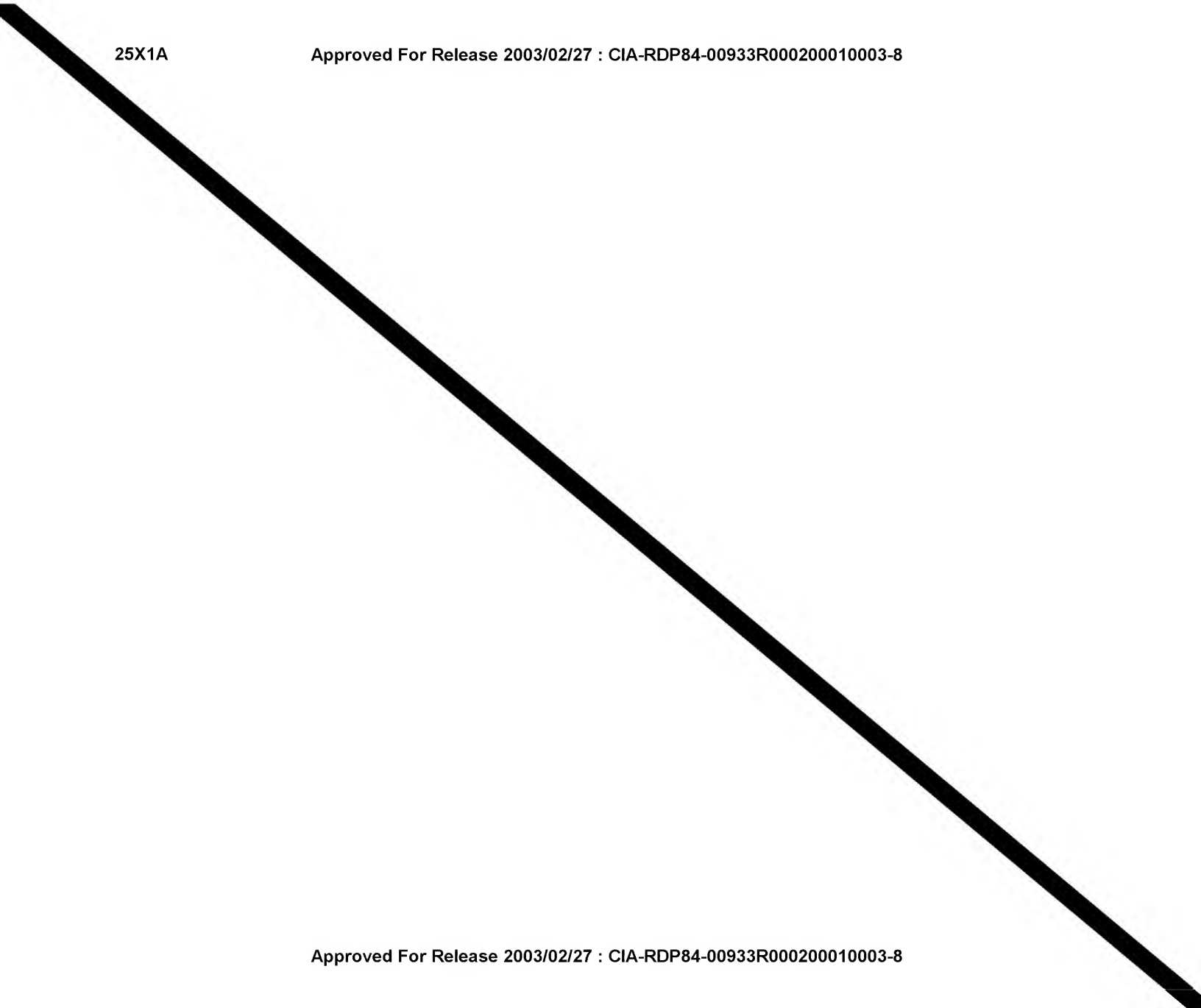

25X1 1.2 [ ]agnitude of Assets. Since FY-70, the investment in hardware and associated software, as reported in Table 1.1, has amounted to total

25X1A assets of some [ ] This total includes over 500 computers of diverse sizes and characteristics which are described in Annex A and detailed in Annex F. Almost 4,000 computer terminals are reported among NSA (2,211), DIA (250) and CIA (1,404). As a commercial parallel, assets of this magnitude, if owned by a private company, would place it in the top 20 percent of the current Fortune magazine directory of the 500 largest United States industrial corporations. In terms of income, which government enterprises receive from Congressional appropriations and which private enterprises derive from sales, the annual

25X1 receipt of nearly [ ] million for ADP-related activities would also place the Intelligence Community on the Fortune magazine top 500 list for 1977, in this instance toward the lower end of that group.(*)

25X1 1.3 [ ] Intelligence Functions Supported by Automation. The intelligence Community uses its ADP-related assets to assist a large variety of intelligence activities. A first level, general categorization that accounts for the major part of those assets and that broadly relates them to the types of activity that they support falls into seven principal functional groupings of collection management; processing; production; administrative management; communications; R&D; and software development for specialized tasks. These are discussed below.

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(*) - Fortune magazine, May 1977

25X1 1.4 [redacted] Collection Management.(*) The resources devoted to intelligence collection are some [redacted] 25X1A according to the Consolidated Intelligence Resources Information System (CIRIS).(**) In view of the magnitude of these resources, it is essential to give careful attention to their overall direction and coordination. Automated systems play important roles in assembling, interrelating, presenting and prioritizing intelligence collection requirements and in keeping track of current collection operations and the status of work underway.

25X1 1.5 [redacted] Processing of Collected Intelligence Information. Processing involves the conversion of raw information into forms suitable for analytical exploitation, including data reduction by machine and by human interpretation. The Processing Function claims some 45 percent of the computers reported herein. This percentage reflects the complexity of transforming raw data into information forms suitable for analysis. Several stages of ADP may be needed before such transformations are complete. For example, the processing of COMINT 25X1

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(*) - Automated systems that are integral parts of the operation of intelligence collection sensors are not included in this report because they are inextricably related components of the collection systems.

25X1 (**) - CIRIS, August 1977 [redacted] Table 2, p. 3.

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[redacted]

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1.6 [redacted] Intelligence Production. This function includes the work to evaluate, analyze, collate and synthesize information in order to create intelligence end products. Information from all sources and sensors is drawn upon in this integrative activity. The Production Function uses only about [redacted] of the total NFIP resources according to CIRIS statistics, but it calls on services from about 16 percent of the computers identified in this report. One extensive form of direct support to and involvement with the Production Function is the work of central reference service organizations, whose activities include the establishment and maintenance of automated, centralized data bases and files, and the storage, retrieval and presentation of intelligence information to production analysts. Intelligence reports and estimates may involve economic or political appraisals, or military events or capabilities, or combinations thereof, and they may focus on broad issues or on specific and immediate situations. The end products are varied -- a national estimate, a current spot report, an incremental addition to a topical data base, the production of an annotated picture or a presentation in graphical

form, the publication of a series of maps or charts, etc. Automated support takes many forms, one of the most important of which is the capability automation provides to intelligence analysts to organize, manipulate, format and associate specific pieces of information drawn from varied intelligence messages, files or data bases, and to perform testing, modeling and evaluating operations that depend on the computational and associative capabilities of computers. Automation makes it possible for analysts to create, change and use working files that have been the analysts' most important tools, regardless of the type of end product. In situations where rapid action is essential, an analyst's ability to select and interrelate data and present reports and evaluations rapidly depends increasingly on automated procedures.

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1.7 [redacted] Management Files. Automated files are currently maintained by the DCI's resources management staff to assist in program and budget review activities. These include the Consolidated Intelligence Resources Information System (CIRIS) data base and the FY 79 Zero-Based Budget (ZBB) data base. Administrative files and data bases assist individual agencies to accomplish their ongoing operations that involve planning, personnel management, security, logistics, and financial management. Since the Intelligence Community includes some

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[redacted], these administrative tasks are sizeable and demanding.

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[redacted] Communications. Automation is a major characteristic of telecommunications systems used by the Intelligence Community.

Applications include uses in message switching and routing, and in traffic handling at major terminal points and centers serving originators and recipients of messages.

STAT 1.8 [ ] Research and Development. Automated capabilities are essential for the development and evaluation of advances in computer hardware and software devoted to intelligence applications, such as data base organization and management, substantive problem modeling, and simulation work that supports the Collection, Processing and Production Functions. R&D in automated systems is underway to improve the timely presentation to consumers of intelligence end products. R&D in data association and pattern recognition is necessary in order to find new means to cope with the increasing inputs of collected information that reach production analysts. Major past successes of the Intelligence Community have frequently depended on trail-breaking uses of research and development, and this will be equally necessary in order to gain mastery for the Community of problems in the information handling area.

STAT 1.9 [ ] Software Development. Many files, data bases and operational activities are unique to the intelligence business. Where speed, size, or manner of use makes automation indispensable, and where off-the-shelf industrial products cannot provide adequate solutions, the Community finds it necessary to prepare complex software programs to cope with its specialized tasks. Resources devoted to this type of activity are used to develop, test, validate and implement these programs.

STAT 1.10 [ ] Intelligence Files and Data Bases. The member organizations of the Intelligence Community have identified and described 467 automated intelligence data bases upon which they place heavy reliance in the performance of their assigned activities. These are described in Annex B and detailed in Annex F. In addition to those data bases, since the acquisition and use of very large amounts of information is the essence of the intelligence business, there are also found throughout the Community many hundreds more sets of information or files. These are the tools of the trade of individual analysts and their immediate branch or section organizations. A portion of this category is not automated, but systems such as the CIA and DIA SAFE scheduled for FY 83 IOC will give analysts greater capabilities to organize their own working materials more quickly and efficiently. Files of this type frequently include assorted information that is not completely processed, analyzed or verified, and these materials have the character of work in progress. This large class of files is not reported on further herein.

STAT 1.11 [ ] Data Base Applications Illustrated. The 467* major automated files are put to uses that are as varied as the intelligence business itself. Those for administrative management, for example, include payroll and personnel records, supply accounts, and information on security clearances and the control of classified materials. Biographic information on foreign personalities is used in Positive Intelligence and Counterintelligence work. Some data bases are wholly involved

* The size of the data bases was not a consideration in determining this number.

with a particular technical sensor, as in the case of organized information used to assist in the collection and processing of COMINT, ELINT or Imagery, and in the management and direction of those ongoing activities. Many data bases are subject oriented -- e.g., political, economic, military, scientific, foreign press reports, et al. -- and may be further focused on those types of events and information that relate to a specific target country or region, or are required to support the mission of a particular military operating command. Some data bases exist in order to aid managers and commanders to make decisions on intelligence collector tasking, or to provide detailed information on foreign military targets and installations. Data bases aid in military weapons selection, mission planning, and the conduct of war games and exercises. Some data bases principally exist to support R&D activities. Some data bases are event oriented, as in the case of the information handling activities mobilized to support a current crisis task force. Some data bases exist to provide bibliographic leads and references to detailed reporting on selected subjects or specific sources.

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1.12 [redacted] Creating and Sharing Data Bases. Approximately 170 of the 467 data bases reported herein are available outside their particular agencies through either the Community On-Line Intelligence System (COINS) or the DIA On-Line System (DIAOLS). However, the Intelligence Community does not now operate under a uniform set of rules and interagency agreements for creating, maintaining or sharing intelligence data

bases. Historically, individual organizations have perceived their own data base needs, and only a small number of data bases have come to be shared with external organizations. Illustrating a newer, community-service trend, the SOLIS* data base at NSA and exploited imagery products at NPIC are available on-line to Community analysts via DIAOLS-COINS.

* SIGINT-On-Line Information System (SOLIS)

II. THE RESOURCES MANAGEMENT ISSUE

STAT 2.1 [redacted] Control Proliferating Information. The immediate and also the longer-term problem for the Intelligence Community, and the challenge for its managers, is to prudently and collaboratively plan the development and use of automated systems and capabilities. It is not a question of being able to do without these assets. A study for the European economic community, addressing the worldwide proliferation of information over the coming decade, has stated that the choice is to "automate or suffocate." (*)

STAT 2.2 [redacted] Improve Functional Management. The issue involves resource allocation, management, multi-agency coordination, and planned growth. New, effective management procedures for the Community are required to make it possible to evaluate alternatives among non-, semi-, and fully-automated systems to carry out intelligence tasks. Accordingly, it is necessary to look into all types of information handling systems, not merely those that are ADP-related. Since the flow and use of intelligence information is not naturally constrained by organizational boundaries, it is necessary that the new management procedures to be established should reflect stronger team-play concepts among all of the members of the Intelligence Community. It is necessary to give greater attention to the functional interdependence of these organizations rather than their institutional independence. This, in turn, will involve establishing new interagency understandings, and the making and acceptance of new mutual commitments within the Community.

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(*) - Information in 1985: A Forecasting Study of Information Needs and Resources, Georges Anderla, Organization for Economic Cooperation and Development, Paris, 1973, p. 89.

STAT 2.3 [redacted] Implement Overall Community Planning. A further challenge is to bring about a purposeful, time-phased change over a period of years. This report has accomplished the preliminary identification of most of the present-day baseline set of intelligence information handling assets and capabilities that have been developed by individual organizations within the Community. Next, a "Community Information Handling System (CIHS)" -- consisting of all the assets of this type that are funded through the NFIP must be developed. This system must possess an analytical decision-making methodology that achieves a cost effective balance adequate to meet performance criteria between the magnitude of future ADP budgets and system performance identified by ADP organizations on behalf of the customers and users of intelligence products. In addition, specific current resources issues, such as those relating to further investments in now-existing systems and the transformation of some of those systems to new Community-oriented configurations, must be dealt with, while the longer-range planning system is being developed, coordinated, and implemented. The challenge is to accomplish this longer-range objective while at the same time continuing to maintain intelligence ADP system effectiveness.

III. DISCUSSION

A. ORGANIZATIONAL VS. FUNCTIONAL MANAGEMENT

STAT 3.1 ☐ ADP Management Requires New Emphasis on Functional Analysis.

The ADP and other information handling assets, systems and capabilities that now exist throughout the Intelligence Community have come into being over the past decade or more because individual departments and agencies obtained resources and applied them primarily to support their own departmental missions, not the overall mission of the Intelligence Community. This is only natural, since the concept of coordinated resources management across the entire Community has, only recently and with considerable difficulty, come to its present focus. The prior and present practice is that resource requests and approvals result from the annual programming and budgeting cycle of events and decisions. However, intelligence programs are organized, necessarily, with a rather pronounced institutional emphasis -- for example the General Defense Intelligence Program (GDIP) of DIA and the Services, the Consolidated Cryptologic Program (CCP) of NSA and the Service Cryptologic Agencies, the CIA Program, the State/INR Program. The organizational emphasis in the existing major intelligence programs has not facilitated carrying out cross-program analysis on such a functional subject as ADP-related resources, which cuts across the institutional and programmatic lines. The existing framework for program review works well in many respects, and as a practical matter it cannot be changed because it is heavily interrelated with the appropriation process. Moreover, the established resources management

systems (e.g., the DoD Five Year Defense Plan, FYDP) of the several departments encompass their intelligence organizations along with many other types of components. The solution to this intelligence management dilemma lies in the direction of supplementing the existing types of program review with centralized functional and issue-oriented analyses. To accomplish this, however, it is necessary to create for Intelligence Community organizations an overall planning and review process, together with a supporting management information system covering ADP and other information handling resources. Such a system must have the capability to select and present, in timely fashion, factual technical data and evaluative data both in the traditional, organization related formats and in new, multi-agency functional-use-related formats.

B. PAST ACCOMPLISHMENTS ARE FUTURE BUILDING BLOCKS

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3.2 [redacted] Accomplishments Illustrated. The members of the Intelligence Community have performed creditably in developing and operating automated systems to accomplish their individual missions. The experience with these assets will contribute to the Community's ability to develop and implement future systems. These systems are described in the FY 79 Congressional Justification Books already submitted to the Congress. Several systems such as DIAOLS-COINS, OSIS, CAMS and EUCOM AIDS/ASSIST represent substantive efforts already undertaken to implement sharing of existing resources on a Community basis.

C. CURRENT PROBLEMS, PRIORITIES AND OPPORTUNITIES

STAT 3.3 [redacted] Planning and Resources Management. The Intelligence Community presently lacks a comprehensive, official master plan for the mid-term and longer-range for all ADP and information handling assets that are funded within the NFIP budget. Taken all together, the individual capabilities and separate subsystems that are so funded make up the Community Information Handling System (CIHS). The Congress has called on the DCI for the preparation of such a plan. To be effective in practice, the plan must be interrelated to and implemented through the events and decisions in the Community's annual program and budget cycle. Responsibility for preparing and updating such a plan will rest with a new Community Information Systems Office (CISO) which is described in Annex C, as implemented by a proposed DCI Directive (Annex D). This report and the accompanying Annex E (Planning for the CIHS) describe the processes by which these planning objectives can be carried out successfully.

STAT 3.4 [redacted] Ad Hoc Current Issue Analysis. The full implementation of a master plan will require several years. In the meantime, as a part of the ongoing program and budget review process, decisions must be made on individual proposals to fund existing information handling capabilities and to create new ones. Since these decisions cannot be deferred in most cases, the Community must carry out ad hoc analyses and take advantage, as practicable, of the initial insights gained from the early stages of comprehensive planning. The implementation of procedures of zero-based budgeting (ZBB), used for the first time in the preparation of the FY 79 President's Budget provides valuable assistance, particularly because of the packaging and ranking concepts. Annex E expands on these procedures.

STAT 3.5 [redacted] Supporting the Work of Intelligence Analysts. The following are among the more pressing matters that require attention in order to improve the effectiveness of automated systems to support the work of intelligence analysts.

STAT 3.6 [redacted] * - Coping with Proliferating Information. The quantity of data gathered and stored per analyst is increasing year by year. The quantity is so large that some data can easily be ignored after being collected and sorted at significant cost. Intelligence information must be brought to a focus and appraised by a finite number of individual substantive experts. Post mortems of the performance of intelligence organizations

in past crisis situations have revealed that we have not been completely able to exploit all relevant information collected or already existing within our data bases. The technical challenge is to develop computer aids for analysts that can highlight potential connections and patterns among events and call them to the attention of the human evaluator.

STAT 3.7 [redacted] * - Interagency Sharing of Data Bases. Studies are required to identify clearly and evaluate the potential costs and tangible benefits from the use of automation to share particular data bases and to permit them to be queried remotely via computer terminal and telecommunications network. This can be an expensive process, however, and each potential application requires its own cost/benefit analysis. Many data bases are so specialized that they should not be shared generally, or where sharing is appropriate it may be found that telephone and mail communications are adequate. The CIA bibliographic data base, called AEGIS, is one where there may be potential gains if access to it by external organizations is expanded. The CISO will seek ways to implement a greater sharing of

STAT 3.8 [redacted] * - Improved Quality of Data Bases. Certain data bases, including some accessible via the COINS-DIAOLS, require improvements to their content, both as to the quality and the timeliness of the information. Also, potential users of intelligence data bases frequently request whether it is possible for sponsoring agencies to make changes in, or additions to, the form and content of data bases. Actions to accomplish these ends can be expensive, both in implemetation costs and in less obvious secondary impacts on related procedures and capabilities. Each case requires careful study before a decision is made.

They signal the need to work out new interagency agreements and mutual commitments, including assurances on the availability of resources, where selected data bases are broadened and restructured for more extensive Community use. Annex B (Data Bases) expands on these reciprocal undertakings which are of a kind that the Community has never undertaken heretofore on such a full and formal basis.

STAT 3.9 [redacted] * - Intelligence Presentation Means. In fast moving situations, one of the greatest challenges for intelligence producers is to ensure tha their reports are presented to policy makers or commanders clearly and in a way that the particular user finds most

helpful to his purposes. Pictures and graphical displays can compress and highlight intelligence information and enhance the written message. The Community has several R&D projects underway in this area, and the work should be continued. Because the development of new devices can be expensive, centralized coordination of these R&D efforts is essential to maximize the potential benefits for the Community as a whole. In this area the Intelligence Community should always be on the cutting edge in R&D activities to improve our products and their presentation.

STAT 3.10 [redacted] * - Group Communications and Conferencing. An activity allied with the improvement of intelligence presentations involves expanding the capabilities of intelligence watch officers and analysts to communicate with each other and with consumers, where group information sharing and collective evaluation of events and data are necessary. In cases where time is of the essence, group conferencing can be a useful mechanism for senior levels of management, or two-way multi-media communications between a senior intelligence official and a senior policy making user of intelligence products can be of great utility. To accomplish these ends, we need to continue investments in systems and capabilities now under development and test, that can make possible secure, rapid intercommunications combining

oral, textual and graphic or pictorial forms of presentation. The National Operations and Intelligence Watch Officers Network (NOIWON), which is now a regularly used system among watch officers for group secure voice conferencing, is one such development already accomplished. A further capability now nearing operational use is the CONTEXT system, which will give the capability to analysts and watch officers to use both secure voice and secure computer terminal conferencing to prepare and coordinate on spot intelligence reports.

STAT 3.11 [ ] Major Technical Challenges. The following paragraphs briefly describe technical problems that deserve priority attention.

STAT 3.12 [ ] * - Security of ADP Systems. By broad consensus security is a pressing technical problem. With the expansion of the concept of sharing data bases that can be accessed by remote users via computer terminals and telecommunications networks, increasingly individuals have the potential to gain access to ever larger amounts of classified and compartmented information. In many cases, a single large computer is used by an agency to store and operate several data bases that are of different levels of

security. Not all intelligence analysts or consumers possess either the multiple clearances and the need-to-know as part of their official duties to be authorized access to any or all intelligence data bases. It is generally acknowledged that today's computer hardware and software cannot give full assurance that computer security can be maintained through those technical means as prescribed in existing government regulations. The problem is made more difficult as the numbers of vendors of hardware and software increase. The result of this factor is that uniform technical solutions become more difficult to devise and implement. This entire subject is a government-wide concern, since "privacy" of records in many domestic agencies can be equated to the "security" of intelligence information. The Intelligence Community, particularly aided by the work of the Defense Advanced Research Projects Agency (DARPA), is active in seeking to address some aspects of this large problem. However, government and industry need to sit down together. Better definitions are needed as to what are reasonable safeguards for information entrusted to machines. Policy as well as technical questions are involved. New rationale and the reinterpretation of rules are involved. Present rules that appear to hold machines to higher standards of security than human beings may need reconsideration.

STAT 3.13 [ ] * - Standard Telecommunications Protocols. Computers have three kinds of interfaces -- with their own users and terminals, with other computers, and with communications networks. Designers of systems using computers must make choices as to how to accomplish these interfaces for their particular purposes. If the computers of the Intelligence Community are to be interrelated more closely, it is necessary to pay greater attention to standardizing telecommunications protocols -- which are merely the agreed upon rules by which data are organized to move over communications lines. The Intelligence R&D Council has identified this as a problem that the Community should address. The existence of standard

telecommunications protocols does not imply that data base management systems, terminals and communications hardware must necessarily be standardized -- these are separate issues. It does mean that in any event the connections should be standard. As with computer security, the problem is broader than the Intelligence Community, and needs greater general government collaboration in the analysis of its aspects. It is another area in which specific needs exist in the Community, which in turn can contribute to solving the broader government questions. Industry can also make a contribution to this analysis.

STAT 3.14 [redacted] * - Data Base Accessibility. Making intelligence data bases sharable through automated networks can be self-defeating unless the data bases are easy to access and use by substantive analysts. A group of technical problems requires attention in this area. The COINS Project Management Office is exploring the development of a single, easily used, common query language to access numerous data bases that were built to different specifications and now can be accessed only by their own special query procedures. Another difficulty is that different data bases use different sets of abbreviations and terminology. This is the "data element standardization" problem. The costs and potential benefits of data element standardization vary greatly among data bases, depending

on the subject matter and contemplated use of the data base. While some further forms of data element standardization appear to be desirable, the Community needs to undertake a series of trade-off studies -- comparing the use of standardized data elements vs. the use of translation devices built into hardware or software -- in order to evaluate individual cases on their own merits. Difficulties to be faced and evaluated include the differences between some sets of international standards, US government standards, US industry standards, and ad hoc standards. To illustrate the costs of standardization, the mere change of the set of country code abbreviations in intelligence data bases -- which is one recent proposal that the Intelligence Community has resisted -- could cost several millions of dollars in rewriting software programs. Such costs can be avoided, however, where in appropriate cases common Community data element standards are applied to new data bases from the outset.

STAT 3.15 [ ] * - Sharing R&D Experience. The Intelligence R&D Council has proven to be a very helpful instrumentality at a high level for the general overview of the spectrum of R&D activities that are of potential benefit to the intelligence business. Following that example, initiatives need to be directed with

greater specificity to more effective means to share the planning, conduct and experience of R&D type activities with specific reference to intelligence information handling systems. This is an appropriate task for those who are made responsible for planning and orchestrating the Community Information Handling System (CIHS), since the evaluation of potential offered by future technology is one aspect of analysis of each new system or capability that is proposed to be included under the Community's long-range plan.

STAT 3.16 [redacted] Operations and Management Challenges. Several issues of general policy and operational management deserve identification and brief comment.

STAT 3.17 [redacted] * - To Automate or Not To Automate. The Community lacks now an overall planning and evaluative process for its information handling and telecommunications assets and proposed systems. Such a process must be able to deal with these complex technical questions on a Community-wide functional basis, not merely on an organizational basis. Frequently, the problem is to determine whether automation is warranted to perform a task for intelligence organizations or consumers that previously has been performed manually. Section D. of this report, begins to describe one of many concepts which may lead to better ADP-T managerial techniques.

STAT 3.18 [redacted] * - Off-the-Shelf Systems vs. Specially-Designed Systems. There are serious risks, time delays, and unanticipated costs that can attend the design, development and implementation of special purpose automated systems for intelligence purposes. As part of instituting a more effective and searching analysis of alternatives, Community managers need to make careful appraisals of the capabilities of commercial hardware and software, and rigorously justify the apparent added benefits, if any, that might accrue from undertaking the risks of development of specially-designed systems. This kind of policy is one that can best be implemented and enforced through appropriate actions at the Community management level.

STAT 3.19 [redacted] * - Centralized vs. Decentralized Control of ADP. Large-size mainline computer hardware is best managed in centralized data processing facilities, although this may sometimes create inefficiencies in the user environment and in the work of the intelligence analyst. Increasingly, however, as miniaturized equipment becomes available and

and its versatility expands, management must work out solutions for the most effective procurement, control and operation of stand-alone or beside-the-desk type equipment. The members of the Intelligence Community are organizations that exist in most cases within the larger framework of their parent departments. As a result, heretofore it has been difficult to make uniform regulations of general applicability relating to ADP. The future task of Intelligence Community management is to promote a practicable degree of uniformity in the ADP procurement, control, operation and equipment evaluation processes, while taking due account of external directive systems that are beyond its control. Within the permissible limits of overall directive systems, it is necessary for local management to make judgments relative to the most effective means to control diverse types of computer equipment within the organization, in accordance with guidelines and principles developed at the Community level which are designed to achieve some uniformity in acquisition, training, maintenance and programming.

STAT 3.20 [redacted] * - Operating Management Problems. The management and operation of computer centers is becoming increasingly complex. For example, competitive procurement results in the continuing diversification of equipment types and manufacturers. At the same time, intelligence ADP systems have the common characteristic of requiring a very high degree of operating reliability and a strong and rapid recovery

capability. Increasingly, it is necessary to depend on contractor support for hardware and software maintenance. Where the government's equipment is overseas, this problem becomes more complicated and more costly. Another type of difficulty for computer center managers is that they find themselves in the middle between competing customer demands, all of which cannot be completely fulfilled. Relief from higher level management is needed in this case. Problems of this general type warrant mention because the effective operation of computer centers and equipment is a specialized task for highly qualified professionals, whose contributions are not always fully recognized because of the technical complexity of the subject matter. The US government as a whole, particularly the intelligence agencies, need to retain their good ADP professionals in order to deal with industry on an equal basis of expertise, as well as to manage expensive and complex assets effectively. In general, current customer requirements for ADP support outpace current assets to solve those needs. Community higher level management can best respond to these operating pressures by ensuring that the channels of communication and support between the front office and the computer center are kept open and are a two way street. This requires a receptive and informed top management and a reporting structure that ensures such communication.

D. IMPROVING THE COMMUNITY'S MANAGEMENT AND USE OF ADP AND INFORMATION HANDLING RESOURCES

STAT 3.21 [redacted] Limitations in Current Managerial Procedures.

The accomplishments discussed in the FY 79 Congressional Justification Books are impressive evidence that management is seeking to plan for and foster cooperative measures for more effective collaboration among intelligence organizations, and between them and their arrays of customers. Nevertheless, these actions are initiatives that have been taken, for the most part, in response to the missions and responsibilities assigned to individual intelligence organizations within their parent departments. While beneficial to the Intelligence Community, these systems and capabilities were not planned -- nor were planning proposals and alternatives analyzed -- against criteria that reflect the full interplay of missions, user needs, and performance requirements imposed by higher authority on the Intelligence Community as a total operating mechanism. Heretofore, the process of planning, and implementation through programming and budgeting, for these types of assets has been a mixture of non-uniform management steps, reflecting the manner in which individual departments and agencies carry on their own business. Independently, each proposal is orderly, under the local rules by which it has been framed and described. But the separate processes are not consistent with each other; the resulting resources proposals have not been easily comparable or evaluatable; and there has been no uniformity in the

presentation of underlying facts and justifications so as to provide a common frame of reference for their analysis in terms of Community benefits. Under these circumstances, advocates of new systems can present proposals that may be parochial, possibly biased, and invariably difficult to refute for lack of a common frame of reference and set of uniform criteria. A central planning office for the CIHS, with a strong technical system analysis capability, is needed to be able to evaluate complex proposals adequately.

STAT 3.22 [redacted] Need for an Official Community Plan. Last year's annual report and the DCI's Perspectives for Planning warned that the major intelligence organizations should begin to reorient their planning for ADP and related information handling systems. The DCI and the Congressional committees dealing with intelligence matters are in agreement that information handling resources must be provided, managed and operated under a comprehensive plan addressing the mid and longer range. Requests for resources to create new capabilities must be evaluated in the context of a viable strategic plan, and planning in turn must be directly related in a very practical way to the cyclical process for programming and budgeting and the procedures of zero-based budgeting.

STAT 3.23 [redacted] Continuing Top Management Attention Will Be Necessary. To provide both continuing impetus and focus for this planning, it is

essential that there be a regular interaction between those in charge of that work and the top level of Community management. Authoritative guidance is essential in order to assure the application of resources according to the approved plan. It is essential, also, so that the plan can stand as the Community's official response to the numerous external authorities that perform various forms of continuing overview of intelligence activities, as well as those who -- as users -- depend upon the outputs and activities of intelligence organizations. Figure 3.1, prepared in DoD and from the point of view of Defense intelligence, illustrates the diversity of organizations with official concerns relative to intelligence information handling.

STAT 3.24 [redacted] Starting the Planning Process. Over the past several months, the chairman of the DCI's Intelligence/Handling Committee with assistance from contractors has made a start toward a central planning concept. As the annexes attached to this report reflect, this undertaking seeks to embrace all of the resources related to ADP, telecommunications, and information handling systems and facilities funded within the National Foreign Intelligence Program (NFIP). For discussion purposes, these resources make up what is herein called "Community Information Handling System (CIHS)."

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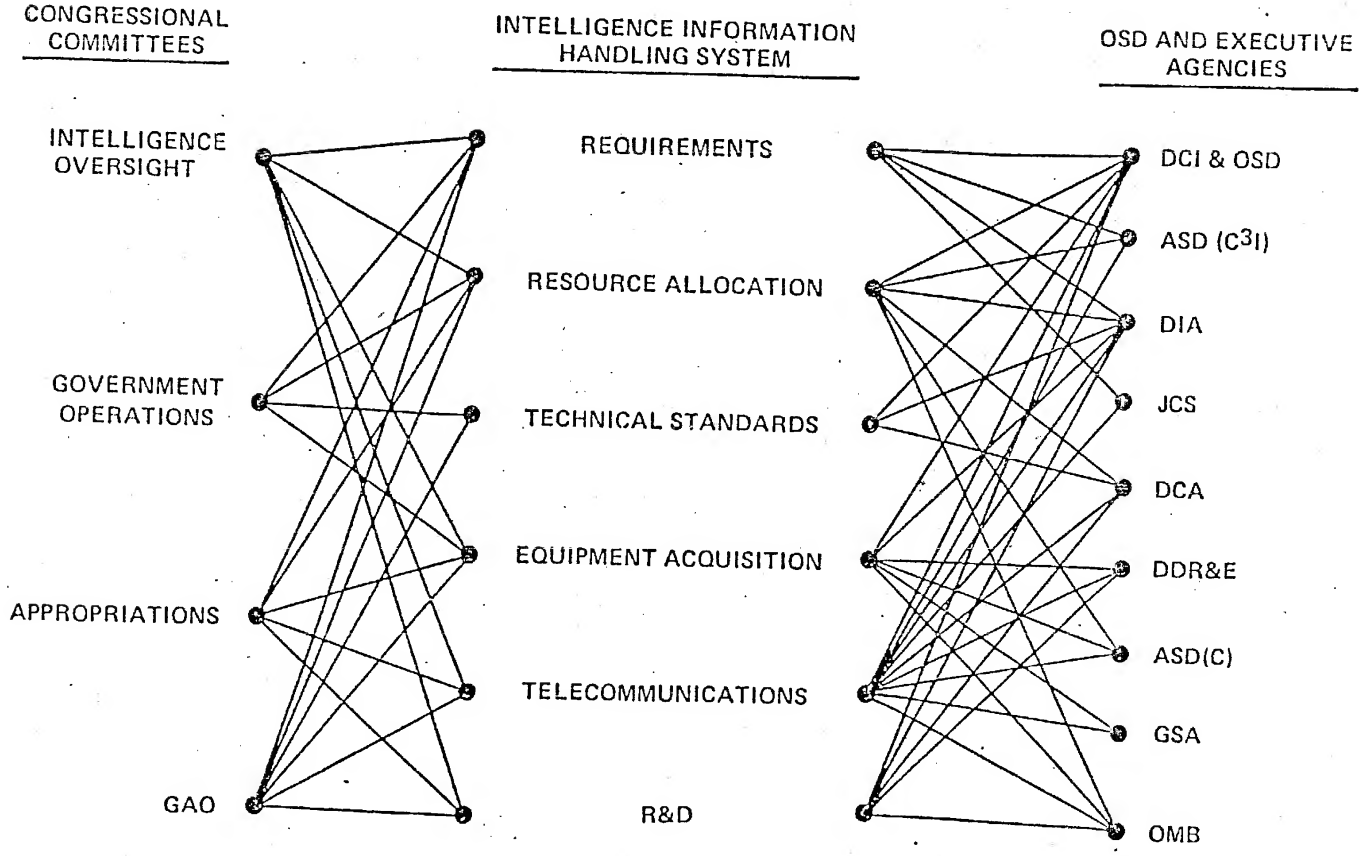
Figure 3.1

POLICY ENVIRONMENT



Prepared by: DoD

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STAT 3.25 [redacted] Underlying Principles Applicable to Planning. In addition to recognition of the need for an overall plan and continuing top management attention, support and involvement in planning decisions, other initial policy guidance for planning includes the following principles.

STAT 3.26 [redacted] * - The accumulation of intelligence information by the US Government is a resource of the nation and not a resource of any department or agency.

STAT 3.27 [redacted] * - Intelligence information is susceptible to being managed, measured and controlled as a resource, in order to promote its most effective use in the service of customers who require intelligence products.

STAT 3.28 [redacted] * - The goal in each Community organization is to improve access to and use of the information resources it possesses through the cost/effective application of manpower and machines.

STAT 3.29 [redacted] * - While automated systems with specialized capabilities are required to fulfill many unique intelligence tasks, a consideration in the design of all future information handling systems should be their impact on other tasks and organizations and their potential for service to the Community as well as to the sponsoring organization.

STAT 3.30 [redacted] * - Since information handling systems and networks cut across agency and department lines, to create a CIHS

that will be of maximum benefit to the entire Community, it is necessary that planning for the CIHS be brought to a central focus and carried out at the Community level. The implementation of officially-approved systems, and their day-to-day operation, however, are best accomplished through individual organizations that are designated to perform those operating tasks. The theme is one of centralized and coordinated planning and decentralized operation.

STAT 3.31 [redacted] Implementation - Organizational. A new organization, the "Community Information Systems Office (CISO)," is now in the process of being established as one part of the reorganization, now underway, of the Intelligence Community Staff.

[redacted] The chief of this office who is the "senior ADP official" in the Intelligence Community will be only two steps removed from the DCI. The mission and functions of this office will ensure that it works in continuing collaboration with the Office of Program and Budget Development and other components of the DCI's Resources Management Staff. [redacted] and also with related ADP-T offices in Community organizations. The office will be responsible for developing the official mid- and long-range plan for the CIHS. It will keep the plan current. It will monitor the implementation of the plan by operating organizations.

STAT 3.32 [redacted] Other responsibilities of the new CISO organization include the design, operation and updating of a comprehensive management information system covering all the information handling assets included in the NFIP. This will provide an authoritative data base of factual and evaluative information to assist in the Community's planning, analysis and examination of these resources. It will also provide a data base to answer spot external inquiries. Another principal function of the office is to play a major role in the identification, analysis and evaluation of current issues relating to ADP, telecommunications and other information handling systems and assets within the NFIP. This task is to be responsive in timely fashion to specific issues raised in the course of program/budget review, and to present for top management decision evaluations of alternatives and related cost and effectiveness considerations. An additional function of the office is to promote and see to the development and application within the Community of a program for improved standards to the extent required to implement more effective means of sharing information within the Intelligence Community.

A guide for organizing the Community Information Systems Office (CISO) is provided in Annex C.

STAT 3.33 [redacted] Implementation - The Planning Process. Annex E presents a proposed planning process. The activities, procedures and tools essential to instituting and maintaining a planning process and a master plan for the CIHS include commitments to accomplish the following tasks: (1) an identification and analysis of the needs of the Community's users and customers for support from information handling systems; (2) an orderly description of the Community's existing baseline of information handling assets and capabilities; and (3) a regular, orderly process for comparing needs with capabilities. Where this comparison identifies "shortfalls," the planning organization must develop and analyze and present evaluated options to the DCI for decision. The plan must be updated regularly and repromulgated annually, and the planning organization must monitor its execution.

STAT 3.34 [redacted] Implementation - Management Information System. Annex E presents a concept provided by the contractor to the IHC Chairman for a management information system (MIS) dealing with ADP-related and information handling assets. The MIS must include data that will permit the quantified measurement and audit of CIHS component system effectiveness in operation. The actual development, test and installation of the MIS is a task that will require cooperation from the Community and a minimun of two years work. In concept the MIS includes organized sets

of detailed information. One relates to performance requirements (user needs) for the Community Information Handling System (CIHS), with particular reference to the relationship of ADP tasks to intelligence functions supported, expressed in zero-based budgeting (ZBB) terms. Another data set describes characteristics of the equipment that makes up each of the component systems in the CIHS, the technical measures that relate to the operation of the system and its status, and system costs. A third data set factually describes the Community's data bases and files, the methods of access, the nature of their uses, and associated costs. A fourth data set relates to descriptions of ADP physical facilities, and still another relates to the characteristics of telecommunications facilities and networks. Annex E, Tab 2 contains further details. In the meantime, CISO will continue to collect and evaluate these kinds of information as part of the ongoing analysis of specific ADP-type issues that arise in the current program/budget cycle.

STAT 3.35 [redacted] Implementation - Improvements in Programming and Budgeting.

A Community Information Handling System (CIHS) will make a major contribution to improving the quality of analysis and decisionmaking throughout the annual cycle of events that leads to a budget for the National Foreign Intelligence Program (NFIP). Several important measures have been instituted during the past calendar year, and they will be built into the CIHS. Highlights of the changes in handling the cyclical events in Community resources management include the following, which are further described in Annex E.

STAT 3.36 [redacted]* - Planning. In the past, no detailed DCI program planning guidance has existed relative to ADP resources. As a result, there has been little DCI influence early enough in budget formulation to have a major substantive effect on ADP resources proposals. The DCI's FY 80-84 Planning and Programming Guidance now includes specific sections devoted to ADP using experience with the FY 79 zero-based budgeting (ZBB) exercise. Such guidance will continue to be provided but amplified by the staff of the CISO.

STAT 3.37 [redacted]* - Programming. In the past, the presentation of proposals for information handling systems and ADP-related assets has been in a piecemeal fashion that has emphasized benefits to particular organizations but not necessarily for the Community as a whole. The CIHS plan and its supporting Management Information System will make it possible to conduct functional reviews across organizational lines in order to assess the cost and effectiveness of program proposals. Further impetus for the functional approach -- which relates resources directly to the substantive intelligence tasks to be supported -- will be derived from the ZBB procedures which stress function-related packages as the focal points for program analysis.

STAT 3.38 [redacted] * - Budgeting. The Community's budget heretofore has been examined in the same institutional packages as its program. The Intelligence Community Staff received estimates in ZBB format for the first time during the fall of 1977 budget exercise. These materials were examined in a series of hearings chaired by the Intelligence Community Staff and participated in by counterparts from the Office of Management and Budget (OMB) and the Office of the Secretary of Defense (OSD). Because of the added visibility that ZBB provided, the Intelligence Community Staff was able to identify and debate ADP resource requests more effectively than previously possible. In addition, the ZBB procedures contribute to assembling a more informative and meaningful set of Budget Justification Books for the Congress.

STAT 3.39 [redacted] * - The Cyclical Process Depicted. The continuing interactions over the course of an annual cycle between Community management and those responsible for planning and executing the Community Information Handling System (CIHS) are illustrated in Figure 3.3.

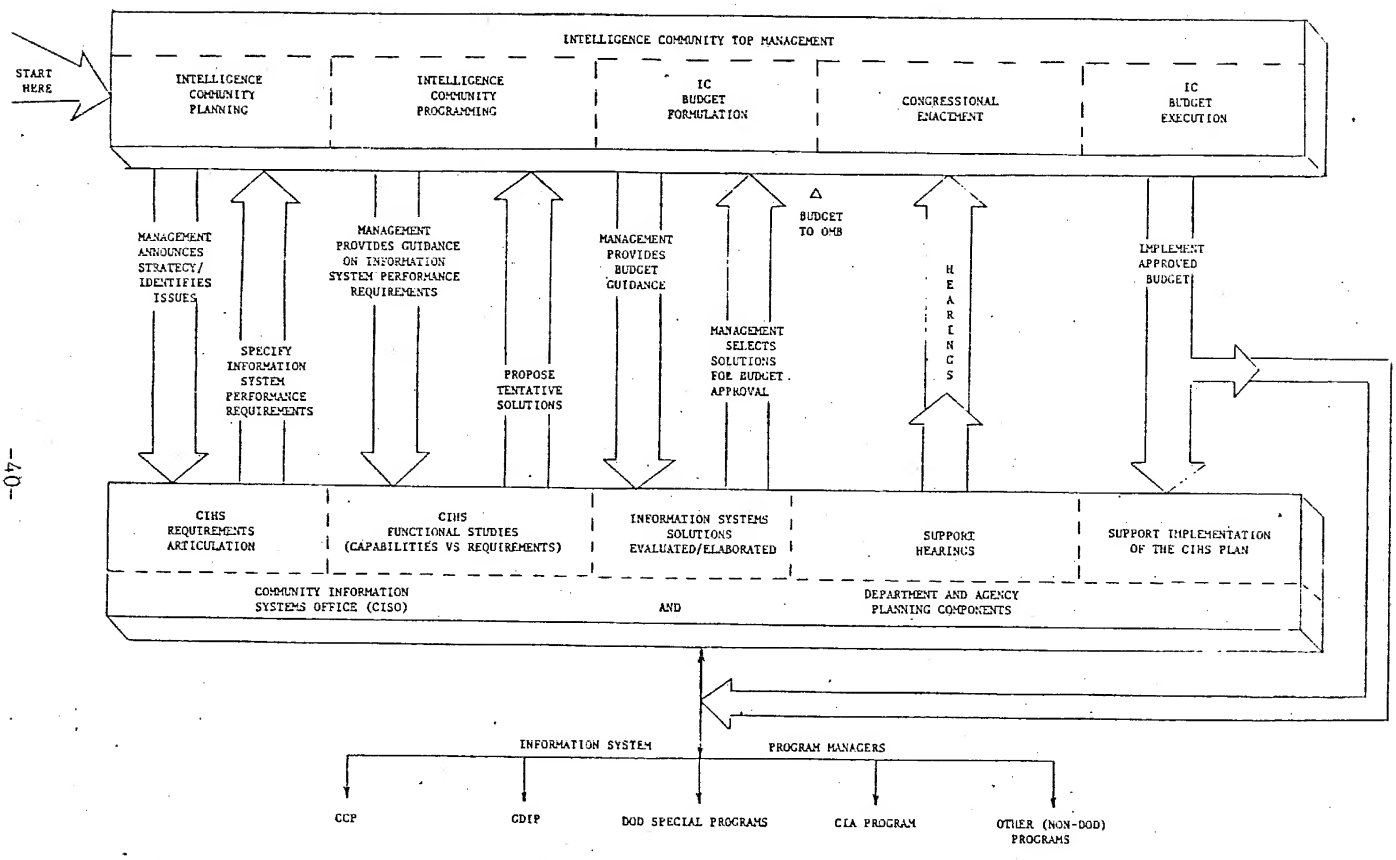

Figure 3.3 INTERFACES WITH COMMUNITY TOP MANAGEMENT IN PLANNING AND EXECUTION OF CIHS

IV. CONCLUSIONS

The Challenge of the Information Explosion

STAT 4.1 [redacted] Section II (The Resources Management Issue) of this report called attention to the necessity for the Intelligence Community to face the full implication of the major proliferation of information that is clearly ahead over the next decade and more. To control this central and inescapable fact, there is no doubt that automation will be employed more extensively and must be handled more effectively.

Effective Community Collaboration in Information Handling Is Essential to Meet This Challenge

STAT 4.2 [redacted] The problem becomes one of selecting the most appropriate tools and techniques to best equip the Intelligence Community to carry out its diverse assigned responsibilities in the light of the information explosion that brings new challenges to the adequacy of the previous ways of carrying out intelligence functions. New efficiencies in information handling are needed, also, because of the increasingly complex, multi-disciplinary nature of substantive intelligence problems, and the compression of the time likely to be available to provide customers with intelligence analyses that may be of critical importance in national security decision-making. Since information flow and use should not be constrained by organizational boundaries, new arrangements to meet these challenges cannot be so constrained. It is essential that this problem be solved in a way that will maximize the collective, collaborative capabilities of all of the member organizations of the

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Intelligence Community, while still assuring them individually of the continuing ability to carry on unique specialties with a high degree of effectiveness.

Implementing a Community Information Handling System (CIHS)

STAT 4.3 [redacted] Scope. New capabilities for information handling should be seen as component parts of a total Community system, and the latter can only be achieved by means of an orderly, comprehensive planning process. The plan that is developed must take account of and provide support for all of the diverse functional activities of the Community where information handling systems and procedures are important to the successful conduct of intelligence work. The plan must encompass all of the resources provided for ADP-related and other information handling activities that are brought within the budget of the National Foreign Intelligence Program (NFIP).

STAT 4.4 [redacted] Commitments. Developing and implementing a comprehensive plan for these assets will probably require several years time, as well as an enhanced commitment of resources earmarked to accomplish the types of problem solving identified in Section II.C. above. Extensive Community cooperation is required to work out new agreements for mutual benefit, as well as continuing support and attention by top management in providing policy guidance and decisions on the selection of new systems from among the competing alternatives that are presented. Existing information handling systems

must continue to be exploited to maximum advantage while future configurations are evaluated competitively against official user performance requirements, and those selected approved for development. Specific action decisions that are the product of the planning process will be given effect through the events in the programming and budgeting cycle. CIHS planning must be long enough in point of time to accommodate the longest lead time items -- such as new collection systems -- for which information support is required. Because of uncertainties inherent in long-term planning, the CIHS planning process should be treated in two time segments: (1) a mid-term period of 5-7 years during which rather precise planning is feasible, and (2) a long-term period, out to some 15 years, where the planning process should be less formal, less authoritative, and more flexible in its form and selective in its content.

Specific Actions to Implement the
Community Information Handling System (CIHS)

STAT 4.5 ☐ Section II. D. above (pp.) describes specific measures that will contribute to accomplishing effective community-wide planning. They include a statement of principles (paras.), the establishment of a Community Information Systems Office (paras. and), the implementation of a planning process (para.), and a management information system (para.). They also include new techniques and procedures to improve the quality of analysis and decision-making with respect to these resources (paras.). These latter measures are already beginning to be

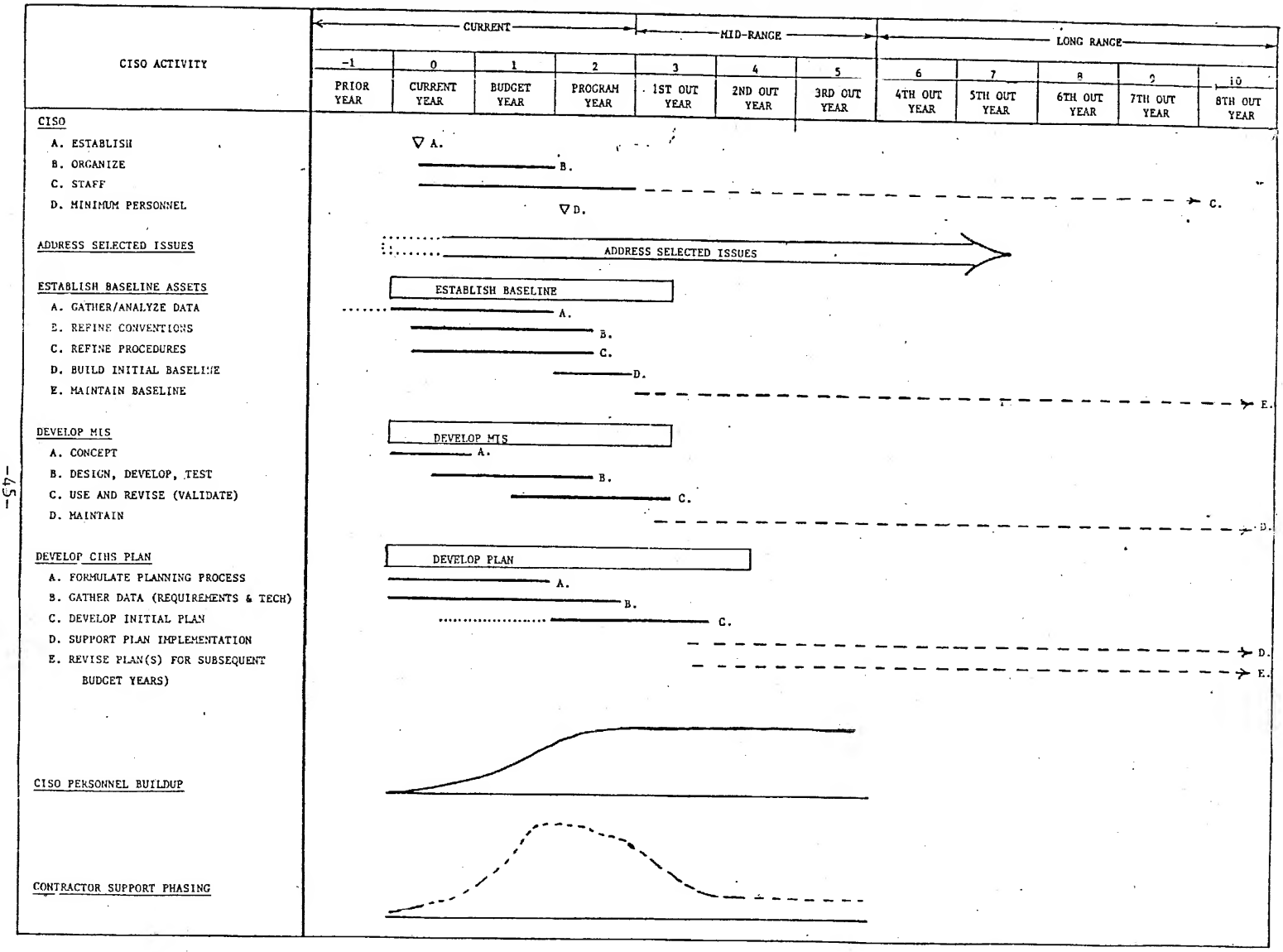
implemented as part of zero-based budgeting. Such procedures will improve in future cycles.

CIHS Start-Up Schedule

STAT 4.6 [redacted] Figure 4.1 presents a start-up schedule for the Community Information Handling System (CIHS). The events on this graphic relate to:

* - Creating a central planning organization
* - Addressing current resources issues
* - Establishing a data base to describe the CIHS baseline inventory of assets and capabilities
* - Developing a management information system of factual and evaluative data for use in the appraisal of existing and new systems and assets
* - Developing a planning process for the CIHS and creating and maintaining a comprehensive CIHS master plan

Figure 4.1 also illustrates in general terms the commitments of personnel and of contractor support that are required to accomplish these tasks.



THE "CURRENT YEAR" IS FY-1978

Figure 4.1 CIHS Start Up Schedule